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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/039,517 | 01/03/2002 | Don Carl Powell | MIO 0059 V2 | 3647 |

7590 02/19/2003

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EXAMINER

LE, DUNG ANH

| | |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
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2818

DATE MAILED: 02/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/039,517

Applicant(s)

POWELL ET AL.

Examiner

DUNG A LE

Art Unit

2818

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Amdt dated 11/22/2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-74 is/are pending in the application.
- 4a) Of the above claim(s) 1-29 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) _____ is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 30-74 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 January 0200 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

This Office Action is in response to Amendments file on 11/4/2002 and 11/22/2002.

Claims 30 and 31 have been amended.

Claims 32-74 are newly added.

Claims 30-74 are pending in the present application at the time of examination.

Newly submitted claims 32-74 directed to an invention that is independent or distinct from the invention originally claimed.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits.

Election/Restrictions

Claims 32- 74 are pending in this application.

1. This application contains claims directed to the following patentably distinct species of the claimed invention:

- a) Species I, e.g. claims 30, 48 : Capacitor device with nitride silicon-containing barrier layer.
- b) Species II, e.g. claim 31: Computer system. See fig. 5
- c) Species III, e.g. claims 32-39, 40, 41, 42: Device with a silicon-containing barrier.
- d) Species IV, e.g. claims 43- 47: A semiconductor device with transistor structure having a silicon-containing barrier layer.
- e) Species V, e.g. claim 49, A semiconductor device having a silicon-containing barrier layer containing no metal forming from silicon source.
- f) Species VI, e.g. claim 50, A semiconductor device having a silicon-containing barrier layer containing no metal forming from silazane source.
- g) Species VII, e.g. claim 51 A semiconductor device with transistor structure having a barrier layer containing no metal.
- h) Species VIII, e.g. claims 52, A Capacitor device with barrier layer containing no metal using rapid thermal nitridation with a nitridizing reactant.
- i) Species IX, e.g. claims 53- 60, Capacitor device with nitride silicon-containing barrier layer from silicon source.
- j) Species X, e.g. claims 61-64 : A device having a precursor layer with a metal-free silicon- containing material formed over at least a portion of first semiconductor device.
- k) Species XI, e.g. claim 65, A device having a precursor layer with a metal-free silicon- containing material formed over at least a portion of silicon substrate .
- l) Species X, e.g. claim 66: A semiconductor device having a precursor layer metal-free silicon-containing material forming from silicon source.
- l) Species XI, e.g. claim 67: A semiconductor device having a precursor layer metal-free silicon-containing material forming from silazane source.

m) Species XII, e.g. claims 68- 71. A semiconductor device with transistor structure having a metal-free containing precursor layer.

n) Species XIII, e.g. claims 72-73, A capacitor having a precursor layer forming over a electrode from a metal-free silicon-containing material from a silazane source

o) Species XIV, e.g. claim 74, A capacitor having a precursor layer forming over a electrode from a metal-free silicon-containing material from a silane source.

2. Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claims is finally held to be allowable. Currently, no claim is generic. Applicant is advised that a response to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is all claims are generic is considered non-responsive unless accompanied by an election.

3. Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 C.F.R. 1.141. If claims are added after the selection, applicant must indicate which are readable upon the elected species.

M.P.E.P. 809.02(a). Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103 of the other invention.

4. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 C.F.R. 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a diligently-filled petition under 37 C.F.R. 1.48(b) and by the fee required under 37 C.F.R. 1.17(h).

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dung A. Le whose telephone number is 703-306-5797. The examiner can normally be reached on Monday-Friday 8:00am-5:30pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on 703-308-4910. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Dung A. Le
Examiner

